



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

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SEP 16 11 01 AM '97

FILE
REPLY TO THE ATTENTION OF

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

SRF-5J

RE: Sitewide Excavation
Plan

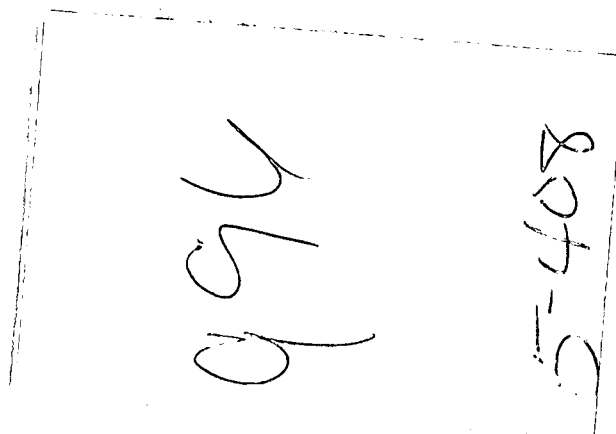
Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (U.S. DOE) sitewide excavation plan.

The plan discusses proposed excavation and certification procedures for implementing sitewide excavation activities.

U.S. EPA has numerous comments on the plan, specifically in relation to the use of real-time monitoring results, controlling excavation, and managing perched groundwater. U.S. EPA has attached its comments.

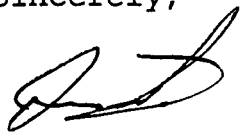
Therefore, U.S. EPA disapproves the sitewide excavation plan pending incorporation of adequate responses to the attached comments. U.S. DOE must submit responses to comments and a revised document within thirty (30) days receipt of this letter.



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Please contact me at (312) 886-0992 if you have any questions regarding this matter.

Sincerely,



James A. Saric
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Bill Murphie, U.S. DOE-HDQ
John Bradburne, FERMCO
Terry Hagen, FERMCO
Tom Walsh, FERMCO

bcc w/attachments:
Francies Barker, PRC

bcc w/o attachments:
Brian Barwick, ORC
Sue Pastor, OPA

TECHNICAL REVIEW COMMENTS ON
"SITEWIDE EXCAVATION PLAN"

GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Saric
Section #: General Page #: Not Applicable (NA) Line #: NA
Original General Comment #: 1

Comment: The "Sitewide Excavation Plan" (SEP) does not sufficiently address critical issues such as use of real-time monitoring techniques as a substitute for physical sampling and laboratory analyses for certification purposes, screening for "hot spots," establishing proper configurations of certification units (CU), and managing perched groundwater. These issues are further discussed in the comments below. The U.S. Department of Energy (DOE) should revise the SEP to reflect currently accepted practices or should provide sufficient justification to convince the regulatory agencies to accept the modified procedures.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: General Page #: NA Line #: NA
Original General Comment #: 2

Comment: Many sections of the SEP, including Sections 2.2.3, 3.3.3.1, 3.3.3.3, 3.4.4, and 4.1.3, as well as Appendixes G and H state that the hot spot criterion is three times the final remediation level (FRL). However, the recently submitted Area 1, Phase I certification report identifies a criterion of two times the FRL. The SEP should be revised to consistently present the accepted hot spot criterion.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 3

Comment: The SEP does not clearly present the rationale for determining whether soil will be routinely screened for Resource Conservation Recovery Act (RCRA) characteristics. The text indicates that these characteristics will be tested for only in areas already suspected to contain characteristic waste and in hazardous waste management units (HWMUs). Based on the possible complexity of waste characteristics in the production area and near former waste management units, and given the difficulty of predicting subsurface conditions because of the waste material's heterogeneity, excavated waste should be routinely screened for hazardous characteristics and relevant hazardous constituents.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: NA

Page #: NA

Line #: NA

Original General Comment #: 4

Comment: The SEP presents a conceptual approach for conducting pre-excavation and certification sampling based on a combination of real-time techniques and physical sampling. The approach relies heavily on using real-time measurements to guide excavation and ensure that waste acceptance criteria (WAC) for the on-site disposal facility (OSDF) are met. However, the ability of the proposed real-time techniques to accurately measure contaminant levels has not been proven. The conceptual approach should be flexible enough to allow for use of real-time techniques yet defensible based on use of sufficient laboratory analytical data.

In addition, real-time measurements are proposed primarily to measure uranium levels on the base of an excavation. These measurements would be used to define a footprint on the ground surface that would then guide subsequent excavation. A number of limitations appear to be associated with this approach, including the following: (1) limited accessibility of equipment to the base of a given excavation because of physical constraints; (2) interference from contamination on sidewalls, in perched water, or on debris; (3) heterogeneous distribution of contamination in samples; and (4) limitations of equipment in defining lateral or vertical contamination on sidewalls or below the level that the equipment can penetrate within the base of a given excavation. Because of these potential limitations, DOE should consider using other measures, such as further verification sampling of sidewalls, excavation bases, and the soils beneath any proposed terminus of an excavation, before excavation activities are stopped in a given area.

Commenting Organization: U.S. EPA

Commentor: Saric

Section #: NA

Page #: NA

Line #: NA

Original General Comment #: 5

Comment: The SEP proposes to identify RCRA-listed wastes using the toxicity characteristic leaching procedure (TCLP) only. Several site areas have handled RCRA-listed wastes. Using the TCLP to identify the extent of listed wastes in such areas is not appropriate because these wastes are listed due to the presence of hazardous constituents identified in Appendix VII to Title 40 *Code of Federal Regulations* (40 CFR) 261. An alternate analytical approach based on the hazardous constituents of the listed wastes should be proposed for areas potentially containing listed wastes.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 6

Comment: No sampling is proposed for sidewalls of excavations.

This approach may be acceptable for areas where it is likely that the sidewalls will subsequently be removed. However, to control future excavations in a given area and to identify the lateral extent of contamination, sampling of sidewalls is recommended. In particular, sidewall sampling should be conducted at the likely perimeter of an excavation area. In addition, where subsurface waste variation is likely (such as in the former production area and near subsurface waste units), sidewalls should be sampled to ensure that the materials do not exceed RCRA criteria or WAC.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 7

Comment: According to the SEP, no procedures have been developed for establishing physical, vertical controls for excavation areas. As an example, deep excavations are proposed in the former production area. The extent of a working area will have to be limited at any given time. Based on the current approach, two contiguous excavation areas would have no physical barrier (such as sheet pilings) to identify the excavation limits. Without temporary or engineered barriers, it will be difficult to ensure that an area is fully excavated or that an area is not re-excavated as part of an adjoining area. The SEP should be modified to address this concern.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 8

Comment: According to the SEP, perched water will be managed as it is encountered, excavations will be routinely pumped, and the water will be discharged to the on-site wastewater treatment plant. The text provides some discussion of possible alternative water management procedures in the event that water contains waste constituents (for example, organics) that cannot be treated by the plant. However, the SEP does not provide sufficient detail concerning perched water management and treatment compatibility determination. In addition, other concerns relating to perched water (for example, excavation stability) are not addressed. To avoid possible problems and delays during excavation, DOE should consider using more proactive means of managing perched water, such as dewatering certain areas before excavation and managing the water accordingly. In addition, DOE should provide more details on the proposed perched water management and analysis plan.

Commenting Organization: U.S. EPA
Section #: 3.2 Page #: 3-9
Original Specific Comment #: 10
Comment: The text states that "remediation wastewater will be sent to the on-site AWWT facility after potential pretreatment for organic contaminants." The text does not define remediation wastewater, and no specific method is described to determine the quality of the remediation wastewater. The text should define remediation wastewater and describe the methodology that will be used to determine its quality.

Commenting Organization: U.S. EPA
Section #: 3.3.1.3 Page #: 3-13
Original Specific Comment #: 11
Comment: The text states that no soil that exceeds the radionuclide WAC will go into the OSDF. However, the low-temperature thermal desorption treatment discussed on Line 17 of Page 3-13 drives off essentially all water and most organic matter. As a result, inorganic matter such as radionuclides is concentrated. Therefore, post-treatment soil may exceed the WAC even though the soil did not do so before treatment. The SEP should be revised to include a provision for retesting soil after treatment whenever the result of an original analysis exceeds half the WAC and the treatment would tend to concentrate the contamination.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.2.1 Page #: 3-15 Line #: 13
Original Specific Comment #: 12
Comment: The text states that Table 2-4 includes physical,
chemical, and radiological WAC for the OSDF. However, this
table includes only chemical and radiological WAC. The
table should be revised to include the physical WAC, such as
the size and shape limits for material to be disposed of.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3.3.2 Page #: 3-18 Line #: 5
Original Specific Comment #: 13
Comment: The text states that the nominal size of Group I CUs is 250 by 250 feet (ft) (up to 62,500 ft²) and that the nominal size of Group II CUs is 500 by 500 ft (up to 250,000 ft²). However, Section 2.2 and Table 2-3 of the Area 1, Phase I certification report define Group I CUs as having a size of 200 by 200 ft up to 1 acre (43,560 ft²) and Group II CUs as having a size of 400 by 400 ft up to 4 acres (174,240 ft²). The report also discusses a Group III CU up to 16 acres in size for use in the fringe areas of the site. The discussion of CUs in the SEP should be made consistent with established practice. Section 3.3.3.2 should therefore be revised, as should Sections 3.4 and 4.1 through 4.6.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: 3.3.3.3 Page #: 3-19 Line #: 4
 Original Specific Comment #: 14
 Comment: The text states that if nonradiological COCs are driving the excavation in a CU, the decision may be made to collect discrete samples for laboratory analysis for metal or organic COCs. The estimated extent of the CU excavation will be determined by the predesign investigation. However, field screening techniques should be used to determine the extent of organic COCs in each CU. Therefore, a specific method for field screening for organic COCs should be included in the SEP.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: 3.3.4.1 Page #: 3-20 Line #: 2
 Original Specific Comment #: 15
 Comment: The text defines WAC attainment for soil. As written, the text could refer to the average concentration of a given contaminant in soil. The text should be revised to define attainment as demonstrating that no portion of the soil intended for the OSDF exceeds the WAC.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: 3.3.4.1 Page #: 3-20 Line #: NA
 Original Specific Comment #: 16
 Comment: The text describes sampling to define the perimeter of an excavation based on WAC attainment. The text should explain how attainment will be defined for sidewalls of excavations. This comment also applies to characterizing HWMUs and the extent of RCRA wastes where soils may exhibit RCRA-characteristic hazardous concentrations. The SEP should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: 3.3.4.4 Page #: 3-22 Line #: 19-27
 Original Specific Comment #: 17
 Comment: The text indicates that RCRA-listed waste will be evaluated using RCRA characteristic testing. This apparent confusion of characteristic constituents and hazardous constituents should be reconciled. In addition, the text appears to indicate that HWMUs will be closed based on data for four samples regardless of HWMU size or waste type. Application of this approach to all HWMUs should be clarified and justified in the SEP.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: 3.4 Page #: 3-23 Line #: 21
 Original Specific Comment #: 18
 Comment: The text implies that the HPGe will be primarily used to certify that uranium and thorium concentrations are less than their FRLs. The comparability report on HPGe results and laboratory data has not been accepted at this time, so the HPGe may not be adequate for certification purposes. The SEP should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.2.2 Page #: 3-25 Line #: General
Original Specific Comment #: 19
Comment: This section discusses taking real-time measurements
with the HPGe. Until the HPGe is accepted by the regulatory
agencies, an alternative method should be used for
certification purposes. The SEP should be revised to address
this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.4.2.3 Page #: 3-27 Line #: 6
Original Specific Comment #: 20
Comment: The text states that some of the samples collected will
be selected for analysis. Unless this selection is random
(as specified on lines 13 and 17), the analytical results
will be unacceptable for certification purposes. The text
should be revised to detail statistically valid sampling
procedures.

Commenting Organization: U.S. EPA
Section #: 3.6
Original Specific Comment #: 21
Comment: Section 3.6 addresses recordkeeping for on-site activities at FEMP. However, off-site activities such as transport and disposal of impacted soil will occur during removal of the sewage treatment plant (STP), and these activities will subject the remediation effort to local permitting and manifesting requirements. The text should be revised to address specific manifesting and document control requirements for off-site transport and disposal activities.

Commenting Organization: U.S. EPA
Section #: 4.1.3 Page #: 4-7
Original Specific Comment #: 22
Comment: The text indicates that a number of sampling techniques may be used to establish pre-excavation limits, and a number of real-time measurements are proposed along with possible use of discrete soil samples. U.S. EPA recognizes that the approach used should be flexible, but the text should provide ground rules for using in situ or discrete soil samples to define an excavation footprint. For example, the text indicates that x-ray fluorescence (XRF), sodium iodide (NaI) detectors, photoionization detectors (PID), HPG methods, or physical sampling with laboratory analysis may be used. However, the text does not indicate why one method may be more appropriate than another based on location, waste type, or field conditions. The basic analytical methods that will be used to establish the excavation footprint and the rationale for their use should be explicitly stated for each excavation area based on current data needs. The SEP should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.3.1 Page #: 4-25 Line #: 1-20
Original Specific Comment #: 27
Comment: The text describes the activities that will be undertaken to characterize the existing soil stockpiles before their excavation and disposal. It is not clear why 60 samples will be collected from the west stockpile and submitted for analysis while only the NaI analysis will be used to characterize other soil stockpiles. The rationale for this approach should be more clearly stated, or should be removed from the SEP and described in more detail in the IRDP.

Commenting Organization: U.S. EPA
Section #: 4.3.3 Page #: 4-27
Original Specific Comment #: 28
Comment: The text indicates that organic vapor monitoring will be used as a basis for identifying potential RCRA-characteristic waste. This approach appears to be inconsistent with the types of characteristic waste likely to be encountered during excavation. Further justification of this approach should be included in the text.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 4.4.3 Page #: 4-36 and 4-37 Line #: NA
Original Specific Comment #: 29
Comment: The text discusses the RCRA units in the former
production area. However, the text is unclear as to why
some units and not others are considered for excavation. The
text should be revised to clarify this matter.

Commenting Organization: U.S. EPA
Section #: 4.4.3 Page #: 4-38
Original Specific Comment #: 30
Comment: The text indicates that soil sampling will be conducted prior to final demolition of structures. It is likely that soil conditions would change after the sampling was conducted because of the demolition activities. The rationale for conducting this sampling should be clearly stated.

Commenting Organization: U.S. EPA
Section #: 5.0 Page #: 5-1 Commentor: Saric
Original Specific Comment #: 31 Line #: General

Comment: This section discusses environmental controls and monitoring. These controls and monitoring activities should be integrated into the various area-specific IRDPs, not segregated. Therefore, at a minimum, the various excavation approach-specific portions of Section 4.0 should mention the special conditions, such as fugitive dust and radon emissions, relevant to each affected area and should cite the related portion of Section 5.0 that includes further information on the corresponding controls and monitoring. The SEP should be revised accordingly.

Commenting Organization: U.S. EPA
Section #: 5.1.2.4 Page #: 5-11
Original Specific Comment #: 32
Comment: This section discusses radon emissions but considers only fenceline monitoring. The text should be revised to address the source monitoring necessary to comply with 40 CFR 61, Subpart Q.

Commenting Organization: U.S. EPA
Section #: C.2.3.3 Page #: C-14
Original Specific Comment #: 33
Comment: The text states that Table C-17 presents the K_d values used in modeling contamination in surface water and sediment. However, this table is not included in the SEP submitted for review. Because these values have a large effect on the estimates of the effective dose to a receptor from a given concentration in the original contaminated soil, the table should be included in the SEP.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: C.3.1 Page #: C-15 Line #: 22
Original Specific Comment #: 34
Comment: The text cites Figures B-2 through B-4. The text
should be revised to correctly cite Figures C-5, C-6, and
C-8. In addition, the text should be revised to account for
Figure C-7, which depicts molybdenum distribution and is not
mentioned in Section C.3.1.

Commenting Organization: U.S. EPA
Section #: C.3.2.4.5 Page #: C-27
Original Specific Comment #: 35
Comment: The text discusses lead contamination from the former trap range. Many birds are highly susceptible to lead toxicity from ingestion of particulate lead into their crops. The presumed form of lead contamination in the former trap range area is lead shot, so such ingestion is a serious concern. This information should be added to Section C.3.2.4.5 in order to support the recommendation in Section C.3.2.4.7 for thorough remediation of this area.

Commenting Organization: U.S. EPA
Section #: C.4
Original Specific Comment #: 36
Comment: The text states that four constituents are likely to be present at remnant concentrations greater than their benchmark toxicity values (BTV). However, Sections C.3.1 (Line 20 on Page C-15) and C.5 (Line 2 on Page C-48) list only three such COCs. This discrepancy should be reconciled.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: Appendix C Addendum Page #: Table C.A-20 Line #: NA
 Original Specific Comment #: 37
 Comment: In this table and the following 12 tables (through Table C.A-32), the entries in the third column are "see note." However, no note is provided in any of the tables. The appropriate note should be included in each table.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.1 Page #: Table D-2 Line #: NA
 Original Specific Comment #: 38
 Comment: The table lists an FRL of 1 milligram per kilogram for calcium, iron, magnesium, potassium, and sodium. However, no FRLs have been established for these essential metals. The table should be revised to correct this error.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: D.1 Page #: Table D-3 Line #: NA
 Original Specific Comment #: 39
 Comment: The table lists the technetium-99 FRL as 29.1 picocuries per gram (pCi/g), but Table 2-7 lists this FRL as 30 pCi/g. This discrepancy should be reconciled.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: E.8.2.1 Page #: E-22 Line #: 9
 Original Specific Comment #: 40
 Comment: The text states that the radiation tracking system (RTRAK) can accurately scan contaminant concentrations of three times the FRL. The hot spot criterion used for Area 1, Phase I certification is only twice the FRL, and hot spot surveys are the primary intended use for the RTRAK. Therefore, DOE should improve the capabilities of the RTRAK so that it can detect contaminant concentrations of twice the FRL.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: F.0 Page #: F-1 Line #: 9
 Original Specific Comment #: 41
 Comment: The text states that Section F.9 deals with surveillance and inspections. However, no Section F.9 appears in the SEP. DOE should either include Section F.9 to provide a summary of its intended surveillance and inspection activities (the preferred alternative) or delete the reference to Section F.9.

Commenting Organization: U.S. EPA Commentor: Saric
 Section #: F.5.3 Page #: F-30 Line #: 28
 Original Specific Comment #: 42
 Comment: The text states that trees will be cut 2 inches above their base and that the upper part of the trees will be chipped for mulch. However, Section F.2.4, "Clearing and Grubbing," states that trees will be cut 2 feet above the ground surface. The 2-foot height criterion is based on the wood sampling program (documented in Appendix D), which used

samples collected 4.5 feet above the base of the trees. The discrepancies in defining the noncontaminated portion of the trunks of woody plants should be reconciled.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: F.5.4 Page #: Figures F.5-2 through F.5-12 Line #: NA
Original Specific Comment #: 43

Comment: These figures show the general protocols for classifying and disposing of special materials encountered during the excavation process. The text indicates that items that cannot be placed in the OSDF will be transferred to a temporary staging area for pickup. The figures should be revised to include an additional step, transfer of such items off site for reuse (if appropriate) or for treatment and disposal.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: G.1.1.2 Page #: Table G-1 Line #: NA
Original Specific Comment #: 44

Comment: The table presents summary statistics for soil contaminant concentrations detected during earlier studies. The table should be revised to include concentration units of measure such as those units used in Table G-3. This comment also applies to Table G-2 and most of the following tables in Appendix G.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: G.1.2.2 Page #: G-9 Line #: 1
Original Specific Comment #: 45

Comment: The text defines P_o as the acceptable proportion of samples that may exceed the FRL. The proposed value of P_o should be included in the text so that the calculations on Line 14 of Page G-9 can be verified.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: G.2.2 Page #: G-23 Line #: General
Original Specific Comment #: 46

Comment: The text and Table G-14 discuss use of the RTRAK to identify hot spots. However, the nonstandard criterion of three times the FRL is used to define hot spots. The text and Table G-14 should be revised to reflect the accepted criterion of twice the FRL. This comment also applies to Section G.2.3 and Table G-15.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: H.4 Page #: Tables H-2 and H-3 Line #: NA
Original Specific Comment #: 47

Comment: The tables show a few target analytes (including arsenic, cadmium, and Aroclor 1260) with minimum detection limits exceeding their FRLs. The accompanying text in Section H.4 should be revised to state that the listed rapid analytical methods cannot be used in areas where contamination with such analytes may exist.